

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)
2. (New) A method for under-pressure carburizing of at least one steel workpiece in a vacuum furnace chamber comprising:
introducing a charge comprised of at least one steel workpiece into the vacuum furnace chamber;
preheating the charge and, when the temperature of the charge reaches 400 °C,
introducing an active nitrogen carrier into the vacuum furnace chamber;
continuing the introducing of the active nitrogen carrier and the preheating until the temperature of the charge reaches a carburizing temperature and the pressure in the vacuum furnace chamber is at 1 to 500 mbar, and when the charge reaches the carburizing temperature, stopping the introducing of the active nitrogen carrier and starting the introducing of a carbon carrier into the vacuum furnace chamber;
thereby effecting the carburizing of the at least one steel workpiece.
3. (New) The method of claim 2, wherein the active nitrogen carrier is introduced to the furnace chamber in a continuous or pulse manner.
4. (New) The method of claim 2, wherein the active nitrogen carrier is ammonia.
5. (New) The method of claim 2, wherein the carbon carrier comprises a mixture of acetylene and ethylene.
6. (New) The method of claim 2, wherein the carburizing temperature is at least 950 °C.